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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/873,698	06/04/2001	Slawomir T. Fryska	H0001347	4771

7590 01/19/2005

Larry J. Palguta
Honeywell International Inc.
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South Bend, IN 46628

EXAMINER

BUTLER, DOUGLAS C

ART UNIT	PAPER NUMBER
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3683

DATE MAILED: 01/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/873,698

Applicant(s)

FRYSKA ET AL.

Examiner

Douglas C. Butler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 18-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-9 and 18-20 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on Oct. 18, 2004 has been entered.
2. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).
3. Claims 1-9 and 18-20 are pending as being readable on the elected species A (Figs. 2-4). Election was made without traverse in Paper No. 6 filed May 17, 2002.
4. Claims 10-17 have been canceled.
5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
6. Claims 1, 3, 4, 6, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over any one of the principal references to Hyde et al (5,779,006) or Riebe

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(5709288) or Cook (3,712,427) or Hyde et al (5558186), in view of Carew (2013948), all of record.

Each one of the principal references discloses an annular structural reusable core and friction linings wherein the linings once worn may be replaced with the core being reusable.

Each one of the principal references lacks the feature of instant claims 1 and 18 directed to the use of a sinusoidally-shaped mounting surface between the core and associated friction lining. The instant specification makes it clear that the use of a sinusoidal or corrugated interface between the lining(s) and core or backing plate/carrier strengthens the connection to better fasten the lining(s) by the interlocking nature of the sinusoidal connection. The examiner agrees that the use of sinusoidal or corrugated connection achieves a strong connection. The use of the sinusoidal connection of instant Fig. 4 with the mechanical fastener 45 permits a quick and efficient replacement.

The secondary reference to Carew (2013948) discloses the use of a sinusoidal or corrugated connection at 18 in Fig. 103 between the friction lining 20 and core or backing plate at 16.

See the entire disclosure of Carew (2013948), in particular, page 1, column 2, lines 1-55, page 1, column 2, lines 1-32, 42-55, page 2, column 1, lines 1-57 and page 2, column 2, lines 1-35. Note the mechanical connectors at 23, 23' of Figs. 1-3 of Carew which correspond to connector 45 of instant Fig. 4.

It would have been obvious at the time the invention was made to modify the brake friction disks of each of the principal references to connect the friction linings to

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the associated reusable core by the use of a sinusoidal or corrugated connection or interface as taught by Carew (2013948) with its fastener 23 or 23' to provide for a stronger friction lining to core, carrier or backing plate connection so as to better fasten the lining to its support and to hinder the lining from detaching during use by the interlocking nature of the sinusoidal or corrugated connection.

The claims are directed to the disk brake art while Carew (2013948) is directed to the drum brake art. These technologies are inseparably linked. Carew (2103948) is reasonably pertinent to the particular problem with which the invention is directed, i.e., strengthening the connection between a lining and its core, carrier or backing plate by a sinusoidal interface so as to hinder separation during use by the interlocking nature with the added ability to replace the lining quickly by the use of a mechanical fastener. See MPEP 2141.01(a) and MPEP 2145. Carew is considered to be analogous art in view of the above. One having ordinary skill in the art recognizes the similarity between disk brake and drum brakes as it pertains to connecting the linings, whether involving a friction disk brake lining or involving a friction drum brake lining re its associated support, carrier, core or backing plate. One having ordinary skill in the disk brake art routinely looks to the drum brake, clutch and fastener technologies when arriving at the type of fasteners available best suitable for the application involved.

7. Claims 2, 5, 7-8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art modified in paragraph 6 above in view of Pigford (4982818), of record.

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Instant claims 2, 5, 7-8 and 19 are directed to the use of carbon-carbon composite for the material of choice for the core and/or friction lining.

The principal references, as modified, lack the specific claimed materials.

Pigford (4982818) discloses the features of carbon-carbon core and/or friction linings.

pb It would have been obvious ^{to modify the principal references, as modified,} to select carbon-carbon as taught by Pigford since the use of carbon-carbon is a well known material for the intended use for enhanced braking capability. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art in paragraph 7 above further in view of Hill et al (4011055), of record.

Each one of the principal references, as modified, lacks the recitation of instant claim 9 directed to the wear surface having "a thermal barrier coating."

Hill et al (4011055) teaches the use of an anti-oxidant coating (thermal coating) in order to reduce oxidation during high temperature operation.

It would have been obvious at the time the invention was made to one having ordinary skill in the art to which the invention pertain to modify each of the principal references, as modified, to include a thermal coating as taught by Hill et al (401155) in order to reduce oxidation during high temperatures.

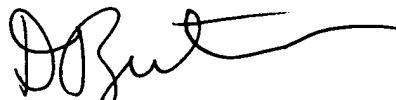
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9. Applicants' arguments in the communication filed Oct. 18, 2004 have been considered but are not convincing for the above reasons. Currently, the subcombination of a friction disk is claimed.

However, claims specific to the combination of elements and environment of Fig. 1 would receive favorable consideration provided that the independent claim corresponds to claim 18 and claim 19 (the carbon-carbon composite) and that the brake is positively claimed in the body of the claim.

10. Kovac et al (3956548) discloses a reusable core sandwiched between frictional wear surfaces 12, 14.

11. Any inquiry concerning this communication should be directed to Exmr Butler at telephone number (703) 308-2575.


DOUGLAS C. BUTLER
PRIMARY EXAMINER

1/18/2005

AU3683

Butler/vs
January 14, 2005